Meeting Minutes

Subject:	Lake Park Ravine Road Concrete Footbridge		
Prepared by:	Colleen Reilly, President, Lake Park Friends		
Location:	Conference call	**Date/Time:**	September 25, 2018 / 3:00 – 4:30 p.m. CT
Participants:	Karl Stave, Milwaukee County		Colleen Reilly, Lake Park Friends
	Kevin Wood, GRAEF		Phil Schultz, Lake Park Friends
	John Kissinger, GRAEF		Margaret DeMichele, Lake Park Friends
	Wes Weir, TranSystems		Steve Duback, Lake Park Friends
	Don Cartwright, TranSystems		

Notes

1 Overall project goal is to have a bridge that is safe, that is economically feasible (in terms of cost and longevity), and that is true to its historical value. Federal, state, and local historic preservation laws require consideration of rehabilitation first and foremost for historic structures. All agree bridge can be rehabilitated; however, differences in what is required during rehabilitation to achieve project goal. Purpose of call is to resolve those differences to help determine what is required to rehabilitate the bridge.

2 Bridge structural elements

a. Kahn bar system in deck. There is limited as-built information, so assumptions were made based on visual inspection. There remains a difference of professional opinion regarding the effective area of steel reinforcement in the deck. Kahn bar spacing is not 18" stated in the design plans and used by GRAEF but is also not consistently 7" throughout the deck as used by TranSystems. Could measure to resolve spacing, but GRAEF believes the effective area of Kahn bars is also of concern. The exposed steel on underside of bridge shows that the uncut fin steel in the transverse Kahn bars are not continuous; only the middle section appears to have the full square bar and fin area (this construction is consistent with the Kahn Manual, which states that the full bar areas can be used to determine strength). Even in middle section, GRAEF believes that Kahn bars have discontinuities which make the use of the fin steel questionable. TranSystems' performed calculations that shows that the bridge has the capacity to support the 80 psf live load as per the original design plans based on scaled dimensions of the rebar from the underside of deck and the effective area of the Kahn bars per the Kahn design manual. All agreed that there is no evidence that the bridge is in an overstressed condition. TranSystems believes that refining these assumptions in the TranSystems calculations will result only in a change to the load ratings for vehicular traffic but would not significantly change pedestrian load capacity. GRAEF does not believe deck can support 90 psf pedestrian loading because of these as-built uncertainties related to the spacing of the deck bars and the effective area of the Kahn bars. The County wants to be conservative with the assumptions, especially given past incidents. The load rating methodologies are inherently conservative and are used on hundreds of bridges across the US. If want to retain the current deck, could resolve via a load test prior to or during design phase. May not be so important to fine tune the deck's load rating if the County has the funds to replace the deck. If refined numbers are lower than 90 psf, could restrict the number of people and restrict vehicles on the bridge with bollards or other.

b. Spandrel beam depth. Remains a difference of professional opinion regarding the spandrel beam depth. GRAEF believes the caulked cracks on interior face of the spandrel suggest a cold joint, and that the haunch makes it difficult to see the cold joint on the exterior of the bridge. GRAEF believes the arches were poured first, then the spandrels, then the deck. TranSystems stated that even if there is a clear joint, it would not change the analysis of the entire beam; the rebar is continuous up through the deck.

Notes	
	GRAEF does not believe the rebar crosses the spandrel beam/deck plane. TranSystems proof of concept demonstrates design intent was achieved based on TranSytems analysis assumptions. All agreed that this could be resolved during the design phase and if needed, the spandrels could be strengthened.
3	Bridge longevity. Based on the additional material testing results (no evidence of ASR; low chloride levels), all agreed that the as long as the rehabilitation is conducted properly (good specifications and good quality control) and the rehabilitated bridge is maintained, the rehabilitated bridge could last at least 50 years. The concrete deterioration that is visible is due to lack of maintenance, minimal concrete cover, and the age of the bridge. Routine maintenance would include periodic application of a penetrating protective concrete sealant, inspections, etc, which would not necessarily be needed on a newly constructed bridge to achieve the same 50+ year life span..
4	Vaulted abutments. County states the vaulted abutments are in poor condition (large cracks, lack of steel reinforcement, eroding ravine slope undermining the foundation). TranSystems stated these curtain walls are architectural features (not structural) and are not connected to the main structure, but they could be replaced during a rehabilitation for low cost. GRAEF stated that these are structural elements supporting the deck, not curtain walls. At the wider overlook sections, there are concrete beam elements that help to support the deck. All agreed this could be evaluated during the design phase.
5	Call concluded at 4:30 p.m.